ADITYA PANCHAL

Berlin, Germany
panchaladitya007@gmail.com • (+49) 15773636211 • LinkedIn Profile • GitHub Profile • Devpost Profile

EDUCATION

Freie Universität Berlin — Berlin, Germany
Master of Science (Data Science) — **Current Grade: 1,5** | *Oct 2022 – Current*

Faculty of Technology and Engineering, — Vadodara, Gujarat, India
The Maharaja Sayajirao University of Baroda — *July 2018 – May 2022*
Bachelor of Engineering (Computer Science & Engineering) — **GPA: 3.96/4.00 | 1st Class w. Distinction**

EXPERIENCE

Siemens AG — Berlin, Germany
Working Student — *Jan 2024 – Present*

- Tasked with testing the IEC 61850 standard library for electronic communications that is primarily used in electrical sub-stations.

Veterinary Medicine, Ludwig-Maximilians-Universität — Munich, Germany
Working Student — *Oct 2023 – Dec 2023*

- As a member of the 'Population's Genomic Group', developed a cLDLA pipeline (Combined Linkage Disequilibrium and Linkage Analysis) for gene-trait mapping.
- Worked on phylogeny project for outlier detection in a given animal population.

Forenzy Networks and Digital Forensics — Vadodara, India
Research Internship — *Aug 2021 – Apr 2022*

- Implemented a fully functional honeypot for a cryptocurrency exchange to monitor the attacks in real-time and developed scanners for the Apache Struts RCE and Log4j vulnerabilities.
- Successfully established a Security Operations Center (SOC) focused on real-time Indicators of Compromise (IOC) detection and automation through the seamless integration of 'The Hive + Cortex + MISP + Wazuh'.

LEADERSHIP & MANAGEMENT

Co-Founder | Co-Leader
HackClub msubaroda — *Feb 2021 – May 2022*

- Hack Club is an international, non-profit network of coding clubs and enthusiasts around the world.
- Spearheaded team for organizing workshops and contributed towards making them successful.
- Coached the juniors regarding their coursework and familiarized them to modern code practices.

ACHIEVEMENTS

- **Recipient of the Deutschlandstipendium**

  Awarded scholarship in frame of the national scholarship programme for academic performance. – certificate link
- **Graduate Aptitude Test in Engineering - IIT Bombay**

  Cleared the *Graduate Aptitude Test in Engineering (GATE-2021)* in Computer Science and Information Technology in maiden attempt. – scorecard link
- **Data Engineering, Big Data, and Machine Learning on GCP Specialization - Google Cloud**
- **From Data to Insights Specialization - Google Cloud -** certificate link

  Successfully completed above specializations from Coursera, Google Cloud. – certificate link

PROJECTS

CHIP-8 Emulator
C++, makefile, SDL
- Coded an emulator for the Chip-8 interpreted programming language used to develop games more easily in the mid-1970s
- Designed the various parts of the emulator such as its 4K memory segment, 16 Key Keyboard, stack, and timers for efficiency.
- Used SDL to render the basic graphics for the system.

Getting Insights into Quantum Chemical Reactions
python, scikit-learn, scipy
- A machine learning project that extracts quantum-chemical insights, namely atomization energy, from the 'QM7 dataset' of molecules.
- Developed a custom Ridge Regression Model that was trained on a simple representation of molecules at first and a complex one (in feature space) later.
- This was followed by Nested Cross Validation for Reproducibility. Also generated deeper insights using explanation techniques to get an idea about *what* in the molecule contributed to its prediction.

Getting Insights into Images and their Metadata
python, scikit-learn, torch, smoothGrad
- Another machine learning project that predicts the healthy state of apple plants based on the images from the 'Mendely Dataset'.
- The top layer (feature layer) of a pretrained torch VGG-16 model was extracted and used for discriminant analysis using the 'difference of means' vector.
- Explanations for the resulting class predictions were obtained using the method of Sensitivity Analysis as well as SmoothGrad (pixels that contributed to the prediction were highlighted).

Deep Learning Project for hen detection and movement tracking
python, scikit-learn, opencv, YOLO, SORT, deepSORT
- A deep learning project that detects and tracks hen movement.
- Detection per frame is achieved using YOLO v7 and that output is processed to be used for tracking using SORT as well as DeepSORT.

Scanner for Apache Struts RCE and Log4j
python, flask, react
- For the Struts RCE vulnerability, an arithmetic expression is injected into the 'Content-Type' header and its response is observed, if the expression is evaluated then Struts RCE is present.
- For log4j, a TCP listener is opened on a port and if there is an attempted connection to it then the log4j library being used is likely vulnerable.

SKILLS

Languages: C, C++, Python, Java, JavaScript, SQL, Rust (beginner)

Web Development: HTML5, CSS3, React, node, PHP, Bootstrap, p5.js, Flask

Others: MySQL, MongoDB, git, Linux, Docker, GCP, Burp Suite, OWASP ZAP

Verbal: English (Fluent), Gujarati (Mother Tongue), German (Beginner)